

REMARKS/ARGUMENTS

Reconsideration is respectfully requested of the Office Action of August 6, 2004, relating to the above-identified application.

Claims 1 and 3 have been combined as amended Claim 1 in order to expedite prosecution and place the application in condition for allowance. The Examiner is thanked for the suggestions concerning improving claim language. These suggestions have been adopted in amended claim 1, with the exception of the word "provided" which applicants believe is unnecessary for a complete understanding of the claim.

The rejection of Claims 1 and 2 under 35 U.S.C. § 103(a), in view of *Kenji* (Abstract of JP-09123927), taken with *Watanabe* (US 6,561,306 B2) is traversed and reconsideration is respectfully requested.

In the present invention, a rack housing H2 comprises a first housing H2a for supporting one end of a rotary element 5 as allowing for a relative axial movement thereof, and a second housing H2b for supporting the other end of the rotary element 5 as inhibiting the relative axial movement thereof. Further, in the present invention, a housing adjuster 10 provides for adjustment of relative axial positions of the first housing H2a and the second housing H2b with respect to a rack shaft 3 as described in the original Claim 3.

Thus, in the present invention, the housing adjuster 10 provides adjustment of the relative axial positions of the first housing H2a and the second housing H2b, thereby accomplishing adjustment of a distance (gap S) between the second rolling bearing 14 and the spring seat 15.

Furthermore, the gap adjustment provides for adjustment of the biasing force that the biasing member 7 applies to the second bevel gear 4.

As a result, in the assembly of an electric power steering system, the torque required for forcing the second housing H2b into the first housing H2a, for example, may be sensed such that the second bevel gear 4 may be meshed with the first bevel gear 2 at a proper contact pressure. This facilitates the backlash adjustment. See, US 2004/0045386 A1, pg. 4, para. [0055], for example.

Furthermore, in the present invention, it is possible to prevent the decrease in power transmission efficiency between the first bevel gear 2 and the second bevel gear 4 by use of the housing adjuster 10. See publication US 20004/0045386 A1, pg. 7, para. [0084], for example.

In contrast, *Kenji* merely discloses one example of a conventional electric steering apparatus. Clearly, *Kenji* does not teach nor suggest the first housing H2a for supporting one end of the rotary element 5 and the second housing H2b for supporting the other end of the rotary element 5 as defined in the present invention. That is, in *Kenji*, a ball nut 40 is rotatably supported by a nut holder 44 via two rolling bearings 46 and 47. The ball nut 40 corresponds to the rotary element 5 of the present invention; and, therefore, in the *Kenji* device, this ball nut 40 is supported with one housing (i.e., the nut holder 44). Further, the nut holder 44 of *Kenji* is only used for supporting the ball nut 40, and, therefore, it is necessary that bevel gears 28 and 52 are disposed outside the nut holder 44. In the case that the bevel gear 28 is meshed with the bevel gear 52 outside the nut holder 44, a rotational force from a motor 22 is transmitted to the ball nut 40 via one end side of the nut holder 44. Accordingly, in the *Kenji* device, it is difficult to improve support rigidity for the ball nut 40 in the nut holder 44, and rotation accuracy of the ball nut 40 in the nut holder 44. As a result, in the *Kenji* device, even if backlash is adjusted suitably with a pre-load adjusting screw 56 while the ball nut 40 is stopped, when the ball nut 40 starts

rotating operation, tooth contact between the bevel gears 28 and 52 is deteriorated, and backlash is increased.

Contrary to the teachings of *Kenji*, in the present invention, the first housing H2a supports one end of the rotary element 5 via a first rolling bearing 13, and the second housing H2b supports the other end of the rotary element 5 via a second rolling bearing 14. Thus, in the present invention, since divided two housings H2a and H2b are used, it is possible that the second bevel gear 4 is meshed with the first bevel gear 2 between the divided two housings H2a and H2b, and a rotational force from an electric motor M is transmitted to the rotary element 5 between the divided two housings H2a and H2b. Thereby, in the present invention, it is possible to improve support rigidity for the rotary element 5, and rotation accuracy of the rotary element 5.

The Office Action admits that *Kenji* fails to disclose a bearing member for biasing the second bevel gear toward the first bevel gear. *Watanabe*, according to the Office Action, would have lead a person skilled in the art to introduce biasing means into the *Kenji* device. Applicants disagree.

The cited reference of *Watanabe* discloses an electric steering apparatus having an elastic member 23 for forcing a driven gear 8 toward a driving gear 7, and explains to reduce backlash by use of the forcing power of the elastic member 23. However, this cited reference does not teach nor suggest the rack housing H2 having the first housing H2a and the second housing H2b, and the housing adjuster 10 for adjustment of relative axial positions of the first housing H2a and the second housing H2b with respect to the rack shaft 3, as well as the cited reference of *Kenji*.

Since *Kenji* is missing the divided two housings H2a and H2b, an important part of applicants' invention is absent from the combination of references. Hence, the combination of references fails to show each and every element of the herein claimed invention.

To establish a *prima facie* obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure, *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification. *In re Linter*, 458 F.2d 1013, 173 USPQ 560, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916837 F2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

A statement that the modifications of the prior art to meet the claimed invention would have been "well within the ordinary skill of the art at the time the claimed invention was made" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ 2d, 1300 (Bd. Pat. App. & Int. 1993).

For reasons set forth above, the Office Action fails to establish *prima facie* obviousness of the claimed invention. Therefore, the rejection should be withdrawn and the claims be allowed.

Favorable action at the Examiner's earliest convenience is respectfully requested.

Respectfully submitted,

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